

**AMENDMENTS TO THE CLAIMS**

In response to First Office Action, please amend the above-identified patent application as follows:

Claims 23, 34, and 46 have been cancelled without prejudice, claims 15, 16, 20, 29, 31, 42, 49-51 have been amended, and claims 53-58 have been added as follows:

1. (Previously presented) A wireless network comprising:  
  
a mobile node; and  
  
a plurality of access points each of which is capable of managing a radio coverage area and also capable of enabling an impulse radio wireless link with the mobile node.
2. (Previously presented) The wireless network of Claim 1, further comprising a positioning network capable of determining a position of the mobile node and also capable of informing at least a first access point about the determined position of the mobile node, wherein said mobile node interacting with the first access point can now have more lead time to interact with a second access point before said mobile node has to handoff communications to the second access point.
3. (Previously presented) The wireless network of Claim 2, wherein said positioning network further includes a net controller capable of determining the position of said mobile node by the interaction between said mobile node and at least two reference impulse radio units.
4. (Previously presented) The wireless network of Claim 2, wherein said positioning

network is also capable of anticipating which access point of the plurality of access points the mobile node is heading towards by tracking the movement of the mobile node.

5. (Previously presented) The wireless network of Claim 1, wherein said wireless network is a wireless local area network.

6. (Previously presented) The wireless network of Claim 1, wherein said mobile node is a laptop computer or a personal digital assistant.

7. (Previously presented) The wireless network of Claim 1, wherein said mobile node can log into the wireless network only if the mobile node is located in an approved area.

8. (Previously presented) A mobile node comprising:

an impulse radio unit capable of using impulse radio signals to interact with an access point.

9. (Previously presented) The mobile node of Claim 8, wherein said impulse radio units is further capable of interacting with a position network that determines a position of the impulse radio unit and forwards the determined position to a first access point that informs the mobile node when the determined position of the impulse radio unit is within an overlapped area of at least two radio coverage areas of at least two access points, wherein said informed mobile node having a wireless link with the first access point now has more lead time to interact with a second access point before said mobile node has to handoff communications to the second access point.

10. (Previously presented) The mobile node of Claim 9, wherein said positioning network

further includes a net controller capable of determining the position of said impulse radio unit by the interaction between said impulse radio unit and at least two reference impulse radio units.

11. (Previously presented) The mobile node of Claim 9, wherein said positioning network is also capable of anticipating which access point of the at least two access points the impulse radio unit is heading towards by tracking the movement of the impulse radio unit.

12. (Previously presented) The mobile node of Claim 8, wherein said wireless link is an impulse radio wireless link.

13. (Previously presented) The mobile node of Claim 8, wherein said mobile node is a laptop computer.

14. (Previously presented) The mobile node of Claim 8, wherein said mobile node is a personal digital assistant.

15. (Currently amended) A method for ~~improving~~ communications within a wireless network using impulse radio technology, said method comprising the step of:

using impulse radio signals to enable communications between a mobile node and an access point.

16. (Currently amended) The method of Claim 15, further comprising the steps of:

~~generating a map including coordinates of a radio coverage area of each access point within the wireless network;~~

determining a position of the mobile node;

informing the mobile node when the determined position of the mobile node is within an overlapped area of the radio coverage areas of at least two access points;

enabling the informed mobile node having an impulse radio wireless link with a first access point to now have more lead time to interact with a second access point before said mobile node has to handoff communications to the second access point.

17. (Previously presented) The method of Claim 16, further comprising the step of tracking the movement of the mobile node so as to anticipate which access point of the at least two access points the mobile node is heading towards.

18. (Previously presented) The method of Claim 16, wherein said step of determining the position of the mobile node further includes using impulse radio technology to determine the position of the mobile node.

19. (Previously presented) The method of Claim 16, wherein said step of determining the position of the mobile node further includes enabling the interaction between the mobile node and at least two reference impulse radio units to determine the position of the mobile node.

20. (Currently amended) A wireless network comprising:

a plurality of access points each of which is capable of managing a radio coverage area and also capable of enabling an impulse radio wireless link with a mobile node; and

a positioning network capable of determining a position of the mobile node and also capable of informing at least a first access point about the determined position of the mobile

node; and

said mobile node interacting with the first access point can now have more lead time to interact with a second access point before said mobile node has handoff communications to the second access point.

21. (Previously presented) The wireless network of Claim 20, wherein said positioning network further includes a net controller capable of determining the position of said mobile node by the interaction between said mobile node and at least two reference impulse radio units.

22. (Previously presented) The wireless network of Claim 20, wherein said positioning network is also capable anticipating which access point of the plurality of access points the mobile node is heading towards by tracking the movement of the mobile node.

23. (Cancelled)

24. (Previously presented) The wireless network of Claim 20, wherein said wireless network is a wireless local area network.

25. (Previously presented) The wireless network of Claim 20, wherein said mobile node is a laptop computer.

26. (Previously presented) The wireless network of Claim 20, wherein said mobile node is a personal digital assistant.

27. (Previously presented) The wireless network of Claim 20, wherein said mobile node would handoff communications to the second access point after completion of a data transfer.

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28. (Previously presented) The wireless network of Claim 20, wherein said mobile node would handoff communications to the second access point after said mobile node moves out of the radio coverage area of the first access point.

29. (Currently amended) The wireless network of Claim 20, wherein said mobile node would handoff communications to the second access point before a signal quality of the impulse radio wireless link between said mobile node and the first access point degrades below a predetermined threshold.

30. (Previously presented) The wireless network of Claim 20, wherein said first access point can alert said mobile node before said mobile node travels into an area known to have interference.

31. (Currently amended) A mobile node comprising:

an impulse radio unit capable of interacting with a position network that determines a position of the impulse radio unit and forwards the determined position to a first access point that informs the mobile node when the determined position of the impulse radio unit is within an overlapped area of at least two radio coverage areas of at least two access points, wherein said informed mobile node having an impulse wireless link with the first access point now has more lead time to interact with a second access point before said mobile node has to handoff communications to the second access point.

32. (Previously presented) The mobile node of Claim 31, wherein said positioning network further includes a net controller capable of determining the position of said impulse

radio unit by the interaction between said impulse radio unit and at least two reference impulse radio units.

33. (Previously presented) The mobile node of Claim 31, wherein said positioning network is also capable of anticipating which access point of the at least two access points the impulse radio unit is heading towards by tracking the movement of the impulse radio unit.

34. (Cancelled).

35. (Previously presented) The mobile node of Claim 31, wherein said wireless network is a wireless local area network.

36. (Previously presented) The mobile node of Claim 31, wherein said mobile node is a laptop computer.

37. (Previously presented) The mobile node of Claim 31, wherein said mobile node is a personal digital assistant.

38. (Previously presented) The mobile node of Claim 31, wherein said mobile node would handoff communications to the second access point after completion of a data transfer.

39. (Previously presented) The mobile node of Claim 31, wherein said mobile node would handoff communications to the second access point after said mobile node moves out of the radio coverage area of the first access point.

40. (Previously presented) The mobile node of Claim 31, wherein said mobile node would handoff communications to the second access point before a signal quality of the wireless link between said mobile node and the first access point degrades below a predetermined

threshold.

41. (Previously presented) The mobile node of Claim 31, wherein said first access point can alert said mobile node before said mobile node travels into an area known to have interference.

42. (Currently amended) A method for ~~improving a roaming scheme~~ within a wireless network using impulse radio technology, said method comprising the steps of:

~~generating a map including coordinates of a radio coverage of each access point within the wireless network;~~

determining a position of a mobile node;

informing the mobile node when the determined position of the mobile node is within an overlapped area of the radio coverage areas of at least two access points;

enabling the informed mobile node having an impulse radio wireless link with a first access point to now have more lead time to interact with a second access point before said mobile node has to handoff communications to the second access point.

43. (Previously presented) The method of Claim 42, further comprising the step of tracking the movement of the mobile node so as to anticipate which access point of the at least two access points the mobile node is heading towards.

44. (Previously presented) The method of Claim 42, wherein said step of determining the position of the mobile node further includes using impulse radio technology to determine the position of the mobile node.



45. (Previously presented) The method of Claim 42, wherein said step of determining the position of the mobile node further includes enabling the interaction between the mobile node and at least two reference impulse radio units to determine the position of the mobile node.

46. (Cancelled)

47. (Previously presented) The method of Claim 42, wherein said mobile node is a laptop computer.

48. (Previously presented) The method of Claim 42, wherein said mobile node is a personal digital assistant.

49. (Currently Amended) The method of Claim 42, wherein said mobile node ~~would~~ hands off communications to the second access point after completion of a data transfer.

50. (Currently Amended) The method of Claim 42, wherein said mobile node ~~would~~ hands off communications to the second access point after said mobile node moves out of the radio coverage area of the first access point.

51. (Currently amended) The method of Claim 42, wherein said mobile node ~~would~~ hands off communications to the second access point before a signal quality of the impulse radio wireless link between said mobile node and the first access point degrades below a predetermined threshold.

52. (Previously presented) The method of Claim 42, wherein said first access point alerts said mobile node before said mobile node travels into an interference area.

53. (New) The wireless network of claim 1, wherein the radio coverage area is managed

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using correlation of a received pulse and a template pulse.

54. (New) The mobile node of claim 8, wherein the impulse radio unit interacts with an access point using correlation of a received pulse and a template pulse.

55. (New) The method of claim 15, wherein the communications between a mobile node and an access point is based upon correlation of a received pulse and a template pulse.

56. (New) The wireless network of claim 20, wherein the radio coverage area is managed using correlation of a received pulse and a template pulse.

57. (New) The mobile node of claim 31, wherein the impulse radio unit interacts with the position network using correlation of a received pulse and a template pulse.

58. (New) The method of claim 42, wherein the position of the mobile node is determined using correlation of a received pulse and a template pulse.